



# In The United States Patent and Trademark Office

For:

## **Solid-Phase Chemical Analysis Using Array Hybridization Facilitated By Agitation During Centrifuging**

Applicant: Gary B. Gordon	Attorney Docket No.: 10002431-4		
Serial No.: 10/010,020	Filed: December 5, 2001	Art Unit: 1634	Examiner: Betty J. Forman

### **DECLARATION UNDER 37 CFR 1.132**

**[01]** I, Reid A. Brennen, declare the following.

**[02]** I am a mechanical engineer employed by Agilent Technologies, Inc., Assignee of the above-identified patent application, in part to help develop equipment for chemical analysis of liquid samples. I received a B.S. (1987), and M.S (1989), and a Ph.D. (1993) in Mechanical Engineering from the University of California at Berkeley.

**[03]** I am familiar with the subject matter of the above-identified patent application, and have read the Office Action of July 20, 2005, and U.S. Patent No. 5,380,662 to Robbins et al., "Robbins" herein, referred to in the Office Action.

**[04]** Robbins discloses a hybridization incubator assembly in which sample bottles are rotated about exactly one axis of rotation. This rotation accomplishes the sloshing sought by Robbins as the inclination and the circumferential angle of the bottles relative to the gravitational field changes as they are rotated. No other motion is disclosed or required to accomplish the sloshing.

**[05]** Robbins does not provide sufficient detail to calculate the centrifugal force (or, more properly, "acceleration") experienced by the bottles as they are rotated. However, Robbins description is consistent with a system with wheels that are one foot in diameter making a complete rotation every ten seconds, in which case the centrifugal force would be about 0.06 gravities (0.06g). To achieve centrifugal forces in excess of 1g, the rotational rate for the same wheels would have to exceed one revolution per second, in which case the liquid would not have time to slosh back and forth. Accordingly, the centrifugal force inherently generated by Robbins' assembly is inherently less than 1g, and nothing in Robbins would teach or suggest any advantage in using rotational rates sufficient to achieve centrifugal forces greater than 1g.

**[06]** The Office Action clearly misinterprets Robbins. In particular, any statement that Robbins discloses, teaches, suggests, a second distinct, e.g., "agitation" axis of rotation or centrifugal forces in excess 1g, or that such features are inherent are just plain wrong. Contrary to a statement in Item 6 of the Office Action, there is nothing in Robbins that involves centrifugation. The statement that the "chamber rocks back and forth" is wrong, the only motion of the bottles is circular about the single axis of rotation.

**[07]** The sloshing or agitation of the liquids described in Robbins is caused *solely* due to changes in orientation of the chamber with respect to gravity. The invention depends solely on centrifugal action, not gravity, and the operation of the invention is independent of its orientation with respect to gravity. The fundamental bases for the operation of the Robbins apparatus and the current invention are completely different from one another.

**[08]** The Office Action also misinterprets the claims. Claim 8 clearly requires a sample cell that is 1) rotated about a centrifuge axis, and 2) rotated about an agitation axis distinct from the centrifuge axis. The statements in the Office Action that the claims require only a single rotational axis and that the agitation axis need not be a rotational axis are clearly contrary to the explicit language in the claims.

**[09]** I further declare that all statements made herein of my own knowledge is true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.



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Reid A. Brennan, Ph.D.

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26 October 2005

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Date